Trend Sudy 18B-4-97

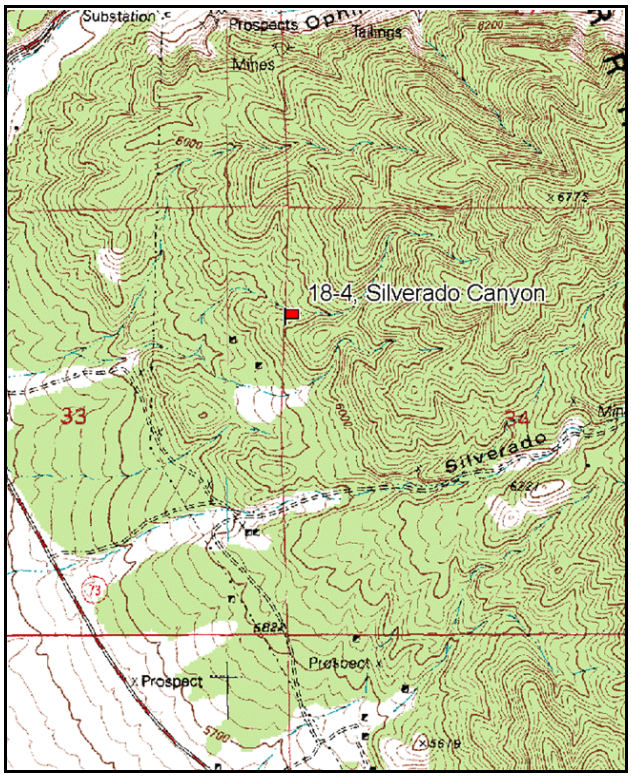
Study site name: Silverado Canyon . Vegetation type: Pinyon-Juniper .

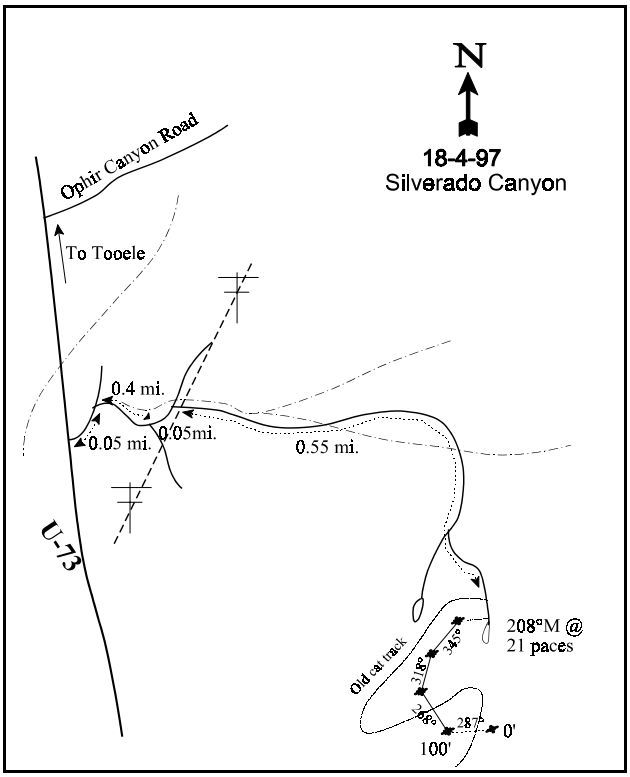
Compass bearing: frequency baseline 287 degrees magnetic. (Line 2 @ 268°M, line 3 @ 318°M, line 4 @ 345°M).

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From the junction of Highway U-73 and the Ophir Canyon road, proceed south on U-73 until the first dirt road to the left is reached before Silverado Canyon. Turn left and travel 0.05 miles to a fork. Take the right fork and travel 0.40 miles to another fork. Take the left fork and travel 0.05 miles to another fork. Take the right fork and travel 0.55 miles until there is a rock pile (a rock monument) on the left side of the road. From here, walk 21 paces at 208 degrees magnetic to the 400-foot stake of the baseline, a green painted steel fencepost, 15 inches in height. The 0-foot stake is marked with a red browse tag, number 3932.





Map Name: Ophir

Diagrammatic Sketch

Township 5S , Range 4W , Section 34

GPS: NAD 27, UTM 12S 4466663 N 390520 E

DISCUSSION

Silverado Canyon - Trend Study No. 18-4

***SUSPENDED - This site was suspended in 2002. Text and tables from the 1997 report have been retained and are found below.

The Silverado Canyon study is located in the juniper-pinyon type between Ophir and Silverado Canyons. The area is thought to be critical deer winter range. However, pellet-group frequency data in 1997 showed wildlife use to be relatively low. The understory is severely depleted of forage with herbaceous cover totaling only to a little over 2%. The study area has an elevation of 5,680 feet with a slope of 2% to 5% and a west-southwest aspect. In the past, deer, cattle, and sheep all used the area, now there is little deer sign and no indications of livestock use.

Soil condition is poor. Aerial cover of juniper and pinyon provides most of what protection there is to the soils from high intensity summer storms. Together they provide 77% of the total vegetative cover. Herbaceous cover, which is most protective of the soils, only contributes to 13% of the vegetative cover. Litter is very sparse, thin and easily moved by surface runoff. Soil textural analysis indicates that it is a clay loam with a neutral pH (7.3). Effective rooting depth (see methods) is over 14 inches with a soil temperature of 52°F at just over 12 inches in depth. The amount of phosphorus in the soil could be a limiting factor to plant development at 9.6 ppm where 10 ppm is thought to be a minimal value where it could limit growth and development of plants. Soil is a heavy clay loam derived from shale and shale in the form of small rocks and pavement from extensive areas of erosion pavement. Through all sampling periods, rock and pavement together have contributed to more than 50% of the soil surface cover.

Browse forage is limited to an understory of black sagebrush and the available portions of juniper and pinyon trees. On this site, the two sagebrush species (Wyoming big sagebrush and black sagebrush) are very similar in appearance and are the products of a high propensity to hybridize on this site and are difficult to distinguish. The majority have physical characteristics of black sagebrush. The average size of sagebrush plants (even mature individuals) is relatively small, averaging under 10 inches in height. Shrub density is moderate. However, little available forage is produced. Other shrubs occur only rarely. There are a few heavily hedged green ephedra, along with a few scattered prickly pear cactus found throughout the understory. Utah juniper and single-leaf pinyon appear to be both increasing on the site.

A herbaceous understory is almost nonexistent as it only contributes to a little over 2% total vegetative cover. A few clumps of Sandberg bluegrass and bottlebrush squirreltail provide virtually the only available grass forage. Cheatgrass brome is present but scattered. It can't even do very well on the site. A few seeded grasses were found in 1997 due to a recent bulldozer track through the area that was apparently seeded. There are many mining claims in the immediate area. Forbs are limited to a few low-growing species of poor forage value. Annual forbs are present but not abundant. The only place where significant amounts of herbaceous growth occurs is along some of the nearby drainage channels. These are usually crowded with cheatgrass and a variety of annual weeds.

1983 APPARENT TREND ASSESSMENT

This site is in poor condition and is not improving. Soil trend appears to be declining. Erosion is excessive and little soil fertility remains. Vegetative trend also appears down. The key browse species are decreasing at the same time overstory trees are becoming more dominant. Understory herbs are almost nonexistent. This site will not recover without some form of rehabilitation effort.

1989 TREND ASSESSMENT

This site continues to be in poor condition. The trend for soil is slightly improved but still poor with percent bare soil down to less than 10% from the high of 21% in 1983. Trend for the key browse (black sagebrush) is slightly down with percent decadence increasing to 66%. Twenty-five percent of the population still displays poor vigor, but that is an improvement from 99% in 1983. The herbaceous understory is slightly down and still in very poor condition as it is only contributing to about 2% cover.

TREND ASSESSMENT
soil - up slightly but still poor (4)
browse - down slightly (2)
herbaceous understory - down slightly and very poor (2)

1997 TREND ASSESSMENT

The site continues to be in poor condition. The trend for soil is stable (but still very poor) with about 10% bare soil, but very little protective herbaceous cover. The trend for black sagebrush is up slightly because percent decadence has gone from 66% down to 18% and only 3% are classified as having poor vigor. The decrease in density is more reflective of the much larger sample size utilized at this time. The much larger sample gives significantly better population estimates for browse populations that are discontinuous and/or clumped in their respective distributions. Another positive characteristic is that now the majority of the population is now classified as mature (77%) not decadent (18%). In fact the density of mature black sagebrush has remained stable at about 1,400 plants/acre since 1989. There has been little change in the herbaceous understory. It is still very poorly represented with 78% of the herbaceous cover furnished by annuals.

TREND ASSESSMENT
soil - stable (3)
browse - up slightly (4)
herbaceous understory - stable, but very poor (3)

HERBACEOUS TRENDS --
Herd unit 18 , Study no: 4

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'83	'89	'97	'83	'89	'97	'97
G	Agropyron cristatum	-	-	6	-	-	2	.01
G	Agropyron smithii	-	-	6	-	-	2	.01
G	Agropyron spicatum	a-	a-	b19	-	-	8	.09
G	Bromus tectorum (a)	-	-	23	-	-	10	.05
G	Dactylis glomerata	-	-	2	-	-	1	.03
G	Poa secunda	a104	b127	a83	47	55	35	.38
G	Secale spp.	-	-	4	-	-	2	.01
G	Sitanion hystrix	b33	a-	a8	16	-	3	.01
Total for Annual Grasses		0	0	23	0	0	10	0.05
Total for Perennial Grasses		137	127	128	63	55	53	0.54
Total for Grasses		137	127	151	63	55	63	0.59
F	Astragalus mollissimus	1	1	3	1	1	1	.00
F	Calochortus nuttallii	3	-	-	1	-	-	-

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'83	'89	'97	'83	'89	'97	'97
F	Chaenactis douglasii	2	-	3	1	-	2	.01
F	Chorispora tenella (a)	-	-	13	-	-	5	.54
F	Cryptantha spp.	2	2	3	1	1	1	.00
F	Descurainia pinnata (a)	-	-	6	-	-	3	.04
F	Draba spp. (a)	-	-	5	-	-	2	.01
F	Lappula occidentalis (a)	-	-	4	-	-	2	.01
F	Physaria australis	1	3	-	1	2	-	-
F	Ranunculus testiculatus (a)	-	-	233	-	-	76	1.04
F	Sisymbrium altissimum (a)	-	-	20	-	-	10	.35
F	Tragopogon dubius	1	-	-	1	-	-	-
Total for Annual Forbs		0	0	281	0	0	98	2.00
Total for Perennial Forbs		10	6	9	6	4	4	0.01
Total for Forbs		10	6	290	6	4	102	2.02

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Herd unit 18 , Study no: 4

Type	Species	Strip Frequency	Average Cover %
		'97	'97
B	Artemisia nova	43	2.01
B	Juniperus osteosperma	0	7.90
B	Opuntia spp.	10	-
B	Pinus monophylla	8	7.34
Total for Browse		61	17.28

CANOPY COVER --
Herd unit 18 , Study no: 4

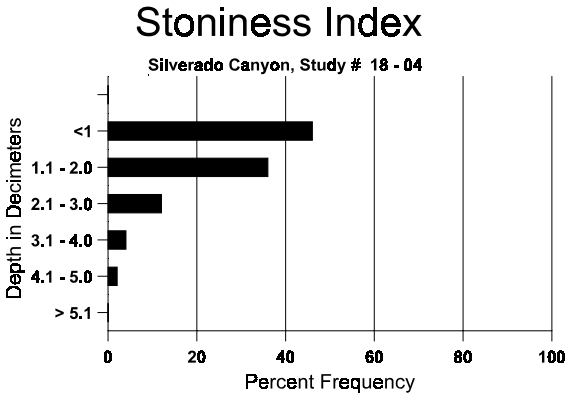
Species	Percent Cover
	'97
Juniperus osteosperma	1.6
Pinus monophylla	4.2

BASIC COVER --
Herd unit 18 , Study no: 4

Cover Type	Nested Frequency '97	Average Cover % '83	'89	'97
Vegetation	286	0	6.25	19.41
Rock	301	12.50	26.75	19.98
Pavement	352	41.75	33.00	30.77
Litter	362	25.25	23.25	21.00
Cryptogams	122	0	1.00	1.93
Bare Ground	264	20.50	9.75	9.62

SOIL ANALYSIS DATA --
Herd Unit 18, Study no: 4, Silverado Canyon

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
7.9	52.0 (12.3)	7.3	29.6	33.8	36.6	3.9	9.6	121.6	.5



PELLET GROUP FREQUENCY --
Herd unit 18 , Study no: 4

Type	Quadrat Frequency '97
Rabbit	27
Deer	13

BROWSE CHARACTERISTICS --
Herd unit 18 , Study no: 4

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia nova																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
Y	83	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	97	3	2	-	-	-	-	-	-	-	5	-	-	-	100			5
M	83	-	-	62	-	-	-	-	-	-	-	-	62	-	2066	11	17	62
	89	23	19	-	-	-	-	-	-	-	41	1	-	-	1400	8	12	42
	97	60	6	-	5	2	-	-	-	-	73	-	-	-	1460	9	18	73
D	83	-	-	44	-	-	-	-	-	-	-	-	44	-	1466			44
	89	70	8	-	-	-	-	5	-	-	50	2	1	30	2766			83
	97	10	2	-	3	2	-	-	-	-	14	-	-	3	340			17
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	300			15

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	99%	99%	+15%
'89	21%	00%	25%	-55%
'97	15%	00%	03%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	3565	Dec:	41%
	'89	4199		66%
	'97	1900		18%

Ephedra viridis																		
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	1	-	-	1	-	-	-	33			1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	
'89	00%	00%	00%	
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	0	Dec:	-
	'89	33		-
	'97	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Juniperus osteosperma																		
S	83	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	83	2	-	-	-	-	-	-	-	-	2	-	-	-	66			2
	89	3	-	-	-	-	-	-	-	-	3	-	-	-	100			3
	97	1	-	-	1	-	-	-	-	-	2	-	-	-	40			2
M	83	1	-	-	1	-	-	-	-	-	2	-	-	-	66	67	101	2
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33	98	122	1
	97	4	-	-	1	-	-	1	-	-	6	-	-	-	120	-	-	6
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	1	-	-	-	-	-	-	-	1	-	33			1
	97	2	-	-	-	-	-	-	-	-	1	-	-	1	40			2
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	100			5

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+20%
'89	00%	00%	20%	+17%
'97	00%	00%	10%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	132	Dec:	0%
	'89	166		20%
	'97	200		20%

Pinus monophylla																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	1	-	-	-	-	-	-	-	-	-	-	1	-	33			1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	83	5	-	-	-	-	-	-	-	-	5	-	-	-	166			5
	89	6	-	-	1	-	-	-	-	-	7	-	-	-	233			7
	97	3	-	-	1	-	-	-	-	-	4	-	-	-	80			4
M	83	-	-	-	2	-	-	1	-	-	3	-	-	-	100	67	126	3
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33	106	110	1
	97	1	-	-	-	-	-	3	-	-	4	-	-	-	80	-	-	4

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+ 0%
'89	00%	00%	00%	-40%
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	266	Dec:	-
	'89	266		-
	'97	160		-